

ASD Weekly Highlights for the Week Ending 12-May-2006

Operations Weekly Beam Delivery Report

May 03-09, 2006

From 03-MAY-2006 to 09-MAY-2006

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Request Type	Hours	Percent Beam Activity
Beam Operation	22.00	45.83
Planned Shutdown	26.00	54.17

Total Beam Activity Requested	48.00	

Recorded Activity Type	Hours	Percent of Total
Machine On Time	110.70	65.89
Machine Start Up	8.00	4.76
Planned Shutdown	36.00	21.43

Total Activity Recorded	154.70	
Total Downtime Recorded	13.30	10.73
Total	168.00	

Equipment Breakdown by Group, SubGroup and Sub_SubGroup

[Group Only](#)
[SubGroup Only](#)

Group	SubGroup	Sub-SubGroup	Hours	Percent of Breakdown T
Vacuum	Vacuum Valves	Fast Valve	.30	2.26
	Magnets	Ring Magnets	.10	.75
	Magnets	Ring Extraction Magnets	.20	1.50
	Controls	Timing System	.50	3.76
	Controls	Software - EPICS	.30	2.26
	RF Systems	Cavities and Structures	.20	1.50
	RF Systems	HPRF - High Power RF Systems	.60	4.51
	Diagnostics	BPM - Beam position monitor	.00	.00
	Diagnostics	BPM - Beam position monitor	1.00	7.52
	*Scheduled Time	Planned Shutdown (no beam, no testing)	.00	.00
	Electrical Systems	LEBT Chopper	.50	3.76
	Electrical Systems	HVCM - High Voltage Converter Modulator	2.00	15.04
	Protection Systems	Radiation Monitors	1.90	14.29
	Accelerator Physics	Application Programs	1.50	11.28
	Machine Protection System	Fast Protect - Latched	1.10	8.27
	Machine Protection System	Fast Protect - Auto Reset	.50	3.76
	Cooling Systems - Accelerator DI	Pumps	1.80	13.53
	Cooling Systems - Accelerator RFQ Chiller		.80	6.02

Accelerator Physics

On May 3rd beam was delivered to the target for the second time, for systematic measurements of beam parameters using the target view screen. We were surprised to observe a skewed beam. We also measured the effects of changing the last four quadrupole currents and the effects of changing the dipole corrector currents. This week we focused on analyzing this data. Initial results indicate that we should be able to extrapolate the beam size and position on the target with reasonable accuracy. Next week we will take more data and test some theories on why the beam appeared to be skewed.

RF Systems

LINAC RF

Ring RF

- Still trying to get the failed local control panels replaced. We have new touch-screens on site to replace the original Redi-Panel units but need to install them then rework the software to utilize the new panels.
- Anticipating some high intensity ring beam this weekend to work on tuning the system for high beam loading.

Ion Source

Instrumentation and Controls

SRF Facility

Project Upgrade

Survey and Alignment

Linac

A laser tracker was moved to the Front End Bldg, and a JHA written, in preparation for checking the location of QH29. After the job was cancelled, the laser tracker was transported back out of the Front End Bldg.

Laser stripper system in Linac Dump area: Realignment of the Stripper Magnet Assembly and the upstream quad, LDump QH5, was required after replacement of the stripper beam pipe. S&A realigned and then mapped said components after the vacuum connections were reestablished. Additionally, LDump QV4 and LDump QV6 were mapped. Diagnostics requested that the laser aperture pair also be mapped. This was performed, angular and elevation data was provided to Saeed from these measurements.

Target

Several small jobs were done for the BL3 engineer. (1) Inspection of neutron guides. (2) Realign two re-machined apertures. (3) Refiducialized flight tube #1 (after removal of top).

On BL 17 and 18, the locations of targets (on translation stages) were adjusted, in anticipation of the alignment effort by Swiss Neutronics.

Network

Work continues on the re-observation of elevations for the exterior monuments. Although incomplete, we can already see that some of the exterior monuments continue to show uneven settlement over the past year (0.6 mm max so far).

The recent overcast conditions have been very good for leveling; much higher precision is possible under these conditions. However, with clouds comes rain, which has slowed our efforts.

Misc

The remote monitoring system for the RTBT is successfully logging data. The RTBT slab has settled a total of only 0.130 mm since March 15, 2006. (The significance of the date is that it is when the last network campaign was performed, so the downstream-most RTBT components now reflect that settlement, too.)

We discovered that the remote monitoring system is sensitive to temperature changes in the RTBT Service Building, where the LVDT amplifiers are located. During a power outage in the RTBT Service Building on Tuesday (May 9), when the temperature therein rose from 73 F to 81 F, the LVDT system showed a corresponding (phantom) RTBT settlement of 0.040 mm, which vanished when the RTBT Service Building temperature returned to normal.

We are continuing our efforts on updating our drawing database to provide easier to use accurate as-built drawings.

Cryo Systems**Mechanical Systems****Shielding****Vacuum****Water**

Magnets

SCLQH 29 had a bus bar reversed which caused one coil to be shorted. The bus bar was installed correctly which fixed the problem.

Electrical Systems

Power Supplies

- Repaired HEBT_Mag:PS_DCV17
- Hooked up the LDRD magnets, klixons, and correctors
- Cleared errors on SCL_Mag:PS_QD22
- Cleared errors on RING_Mag:PS_QTHC10_D13
- Troubleshoot noise problems on the main ring dipole power supply – power supply ok, found to be noise in PSI
- Troubleshoot high voltage power supply problems with extraction kicker #7
- Placed filter capacitors on the MPS signals for RTBT supplies 1-4
- Supported maintenance day activities with electrical support
- Repaired supplies: Extraction kicker #12, loose wires on 24v terminal strip. SCL_QD29, magnet buss shorted out. DTL_DCV427 and DCH513.
- Tested the mechanical fit-up of the ground shroud on the extraction kicker magnet tanks. Added an inch the height and will get 14 manufactured.

Modulators

- Received prototype new choke winding parts and did a preliminary assembly of the unit. The new design utilizes oil as the insulating dielectric instead of the solid dielectric in the original design and introduces larger clearances between windings to reduce the electric field gradients. This should result in a more reliable unit. We will deploy this first article in the DTL-Mod1 HVCM during the June shutdown period. Production units will require some minor design modifications and will likely utilize an injection molding process to reduce costs.
- Performed troubleshooting on CCL-Mod4 Rogowski coil system and have now isolated the problem to the probes. Also performed additional troubleshooting on the comparator circuit of the Dynamic Fault Detection chassis.
- Design work for the next generation LEBT chopper system was performed, primarily focusing on main switch device selection and thermal management issues.
- Repaired LEBT chopper “A” pulser by eliminating the overvoltage sparkgap on the output which had leaked air, thereby degrading its dielectric strength and resulting in prefires. The unit is still protected from overvoltage events by the avalanche diodes installed previously.
- Repaired IGBT assemblies.
- Repaired Driver cards.

Electrical

- The following UPS are now being monitored at the CUB's power monitoring station: KL-2UPS1, KL-2UPS2, KL-2UPS3, KL-4UPS2, HS-1UPS1, & RN-1UPS1
- KL-2EG1 successfully reported data to power monitoring station during the generator run/maintenance yesterday.
- Issued/Routed As-Built drawings of Target Bldg. Motor Control Centers for squad check review
- Finalized walk down of Target Bldg. panel boards
- Completed repair of 13.8kV switch serving the RTBT substation

Installation

- Supported ABB and Siemens to set VFD parameters on CLO Air Handler-26 and return fan RF-8 in auditorium

XFD

- Terminated Chopper Vacuum Interlock Cables at BL2
- Completed Vacuum interlock interface cabling for the Astrium neutron choppers

Other

- Teresa Toomey attended a Grounding and Electrical Protection Course this week in St. Louis, MO